Description

Printer

Technical Field

The present invention relates to a printer.

Background Art

A conventional printer comprises a main body, a storage space for printing sheet, which is disposed in the main body and having a top opening, a cover which is installed at the top opening of the storage space and can be freely opened and closed, a printing sheet stored in the storage space, a sheet outlet port formed between the opening end of the cover and the storage space wall opposing thereto, a printing section disposed below the sheet outlet port, and a sheet cutting means disposed below the printing section.

The problem of the conventional printer is that the operation to set the printing sheet is complicated.

That is, in the sheet cutting means of the conventional printer, both of a stationary blade and a movable blade are installed at the main body side. Accordingly, when setting the printing sheet, it is necessary to pull the end of the printing sheet out of the sheet outlet and, after that, to let the printing sheet pass between the stationary blade and

the movable blade below the printing section. Particularly, since the gap between the stationary blade and the movable blade is very narrow, the operation to pass the printing sheet between the stationary blade and the movable blade is troublesome.

Summary of the Invention

The present invention is intended to simplify the printing sheet setting operation.

In order to achieve the purpose, the printer of the present invention has a sheet cutting means which comprises a first cutting blade installed at the opening end of the cover located below the printing section, and a second cutting blade installed at the main body portion opposing to the first cutting blade.

As is seen in this configuration, since the first cutting blade of the sheet cutting means is disposed at the opening end of the cover, the printing sheet is stored in the storage space, and the end of the printing sheet is brought out of the sheet outlet port until at least reaching the printing section before closing the cover. In this way, the first cutting blade disposed on the cover is opposed to the second cutting blade at the main body side, thereby composing the sheet cutting means. Accordingly, it is possible to simplify the operation to set the printing sheet.

Brief Description of the Drawings

Fig. 1 is a sectional view of essential parts of the printer in one embodiment of the present invention. Fig. 2 is a perspective view of essential parts of the printer shown in Fig. 1. Fig. 3 is a perspective view of the cover of the printer shown in Fig. 1. Fig. 4 is a perspective view of the mounting frame attached to the cover of the printer shown in Fig. 1. Fig. 5 is a perspective view of the movable blade of the printer shown in Fig. 1. Fig. 6 is a perspective view of the movable blade of the printer shown in Fig. 1. Fig. 7 is a sectional view of the movable blade of the printer shown in Fig. 1. Fig. 8 is a sectional view of the movable blade of the printer shown in Fig. 1.

Best Mode for Carrying Out the Invention

One embodiment of the present invention will be described in the following with reference to the drawings.

As shown in Fig. 1, the printer of the present embodiment comprises a main body 1, a storage space 3 for printing sheet 2, which is disposed in the main body 1 and having a top opening, a cover 4 which is installed at the top opening of the storage space 3 and can be freely opened and closed, a sheet outlet port 5 formed between the opening end of the cover 4 and the storage space wall opposing thereto, a

printing section 6 disposed below the sheet outlet port 5, and a sheet cutting means 7 disposed below the printing section 6.

The storage space 3 is concavely formed by the main body 1, and there is provided the cover 4 thereabove.

The cover 4 has a shaft hole 4a at the bottom right portion of the cover as shown in Fig. 2 and Fig. 3. By a shaft 8 of Fig. 1 inserted into the shaft hole 4a, the cover 4 is disposed at the top opening of the storage space 3 and can be freely opened and closed.

Also, a mounting frame 9 shown in Fig. 4 is installed at the bottom left of the cover 4, and a stationary blade 10 as a first cutting blade protruding to the left is disposed at the upper part of the mounting frame 9. Also, a cylindrical platen roller 12 is rotatably disposed by a shaft 11 at the lower part of the mounting frame 9.

Also, when the cover 4 is closed as shown in Fig. 1, a thermal head as the printing section 6 is located opposing to the platen roller 12.

And a movable blade 13 as a second cutting blade composing the sheet cutting means 7 is disposed together with the stationary blade 10 above the printing section 6.

A mounting frame 14 for the movable blade 13 is engaged with a screw thread 15 shown in Fig. 1, and the screw thread 15 is rotated in one direction by motor 16, then the movable

blade 13 makes a reciproca[illegible]

the surface.

That is, as shown in Fig. 8, [illegible]roove provided in in the standby position outside the sta[illegible]ade 13 stays is actuated by spring 17 against the upper[illegible]e 10, and stationary blade 10 outside the end of printing of the shown in Fig. 7, Fig. 5 and Fig. 6. Thus, the movab[illegible]2 as 13 moves from the standby position while sliding on[illegible]de surface of the stationary blade 10.

And in this way, the printing sheet 2, after printing at the printing section 6, is cut and separated by the sheet cutting means 7 comprising these stationary blade 10 and movable blade 13.

In addition, since the stationary blade 10 is disposed at the opening end of the cover 4, the printing sheet 2 is stored in the storage space 3, the end of the printing sheet 2 is brought out of the sheet outlet port 5 until at least reaching the printing section 6 before the cover 4 is closed. Thus, the stationary blade 10 disposed on the cover 4 is opposed to the movable blade 13 at the main body side, composing the sheet cutting means 7. Accordingly, it is possible to simplify the operation to set the printing sheet 2.

Further, since the cover 4 has the stationary blade 10 as a first cutting blade, it is possible to make the cover 4

compact. And thereby, the storage space 3 can be increased in space, and also the cover 4 can be decreased in height.

And, the movable blade 13, at the standby position as shown in Fig. 8, slowly goes up the slope 18 outside the stationary blade 10 and moves thereabove without abutting the stationary blade 10.

That is, the movable blade 13 moves along the stationary blade 10, and the standby position of the movable blade 13 is provided outside the stationary blade 10. Accordingly, the movable blade 13 is at the standby position outside the stationary blade 10 when the cover 4 is opened and closed. Thus, trouble such as collision of the stationary blade 10 and the movable blade 13, impeding the opening and closing operation or giving damage to both blades 10 and 13 may be prevented when the cover 4 is opened and closed.

Also, the movable blade 13 moves up at the standby position. Therefore, when the movable blade 13 moves from the standby position with the cover 4 closed, the movable blade 13 approaches the upper surface of the stationary blade 10 from the up position. Accordingly, even when the position of the stationary blade 10 is slightly changed with the cover 4 closed, the movable blade 13 is able to precisely approach thereto from the up position to smoothly cut the printing sheet 2.

There is provided a spring 17 to actuate the movable

blade 13 downward, so that an appropriate relationship may be maintained between the stationary blade 10 and the movable blade 13. Thus, it is possible to smoothly cut the printing sheet 2.

The printing sheet 2 is held and carried between the platen roller 12 and the printing section 6 as a gear (not shown) installed in the main body 1 is engaged with gear 19 fixed to the end of shaft 11 of the platen roller 12.

Industrial Applicability

As described above, the present invention comprises a main body, a storage space for printing sheet, which is disposed in the main body and having a top opening, a cover which is installed at the top opening of the storage space and can be freely opened and closed, a printing sheet stored in the storage space, a sheet outlet port formed between the opening end of the cover and the storage space wall opposing thereto, a printing section disposed below the sheet outlet port, and a sheet cutting means disposed below the printing section, wherein the sheet cutting means comprises a first cutting blade disposed on the opening end of the cover located below the printing section and a second cutting blade disposed on the main body portion opposing to the first cutting blade. Since the first cutting blade included in the sheet cutting means is installed on the opening end of the

cover, the printing sheet is stored in the storage space, and the end of the printing sheet is brought out of the sheet outlet port until at least reaching the printing section before closing the cover. In this way, the first cutting blade installed on the cover is opposed to the second cutting blade at the main body side, composing the sheet cutting means. As a result, the printing sheet setting operation can be simplified.